United Nations

Framework Convention on Climate Change

FCCC/IDR.6/BEL

Distr.: General
23 February 2015

English only

Report of the technical review of the sixth national communication of Belgium

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol.

This report presents the results of the technical review of the sixth national communication and supplementary information under the Kyoto Protocol of Belgium conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

GE.15-03383 (E)

1503383

Please recycle

Contents

		Paragraphs	*Page*
I.	Introduction and summary	1–10	3
	A. Introduction	1–5	3
	B. Summary	6–10	3
II.	Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol	11–132	6
	A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol	11–36	6
	B. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol	37–78	12
	C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol	79–103	19
	D. Provision of financial resources and technology transfer to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol	104–112	26
	E. Vulnerability assessment, climate change impacts and adaptation measures	113–119	28
	F. Research and systematic observation	120–127	32
	G. Education, training and public awareness	128–132	33
III.	Summary of reviewed supplementary information under the Kyoto Protocol	133–137	34
	A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol	133–134	34
	B. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol	135–137	35
IV.	Conclusions and recommendations	138–151	36
V.	Questions of implementation	152	39
Annex			
	Documents and information used during the review		40

I. Introduction and summary

A. Introduction

1. For Belgium, the Convention entered into force on 15 April 1996 and the Kyoto Protocol on 16 February 2005. Under the Convention, Belgium made a commitment to contribute to the joint European Union (EU) economy-wide emission reduction target of a 20.0 per cent reduction in greenhouse gas (GHG) emissions below the 1990 level by 2020. Within the burden-sharing agreement of the EU for meeting commitments under the Kyoto Protocol, Belgium committed itself to reducing its GHG emissions by 7.5 per cent compared with the base year (1990)[1] level during the first commitment period, from 2008 to 2012. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Belgium committed to a joint EU economy-wide emission reduction target to reduce GHG emissions by 20.0 per cent compared with the 1990 level.

2. This report covers the in-country technical review of the sixth national communication (NC6) of Belgium, coordinated by the secretariat, in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" (decision 23/CP.19) and the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1).

3. The review took place from 3 to 8 November 2014 in Brussels, Belgium, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Violeta Hristova (Bulgaria), Mr. Qiang Liu (China), Ms. Dace Lodzina (Latvia) and Ms. Anna Romanovskaya (Russian Federation). Mr. Liu and Ms. Romanovskaya were the lead reviewers. The review was coordinated by Mr. Nalin Srivastava (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also reviewed the supplementary information provided by Belgium as a part of the NC6 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by Belgium in its 2014 annual submission of its national GHG inventory and previous submissions under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of Belgium, which provided comments that were considered and incorporated, as appropriate into this final version of the report.

B. Summary

6. The ERT conducted a technical review of the information reported in the NC6 of Belgium in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications" (hereinafter referred to as the UNFCCC

[1] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for carbon dioxide, methane and nitrous oxide, and 1995 for perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride. The base year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

reporting guidelines on NCs). As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in the NC6 (see para. 134 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above is complete and mostly transparent.

7. Belgium considered part of the recommendations provided in the report of the in-depth review of the fifth national communication of Belgium.[3] In response to the recommendations made in the review report of the fifth national communication (NC5), Belgium provided information on how it strives to implement policies and measures (PaMs) in such a way as to minimize the adverse impacts of climate change, as well as a description of projects/programmes on technology transfer and access in order to highlight success stories. The ERT commended Belgium for its improved reporting. During the review, Belgium provided further relevant information, for example on the National Adaptation Strategy; the Flemish Climate Policy Plan; its national system and national registry; domestic arrangements; trends and drivers of emissions in major sectors; procedures and indicators for monitoring progress in PaMs; arrangements for ensuring that afforestation/deforestation measures contribute to the conservation of biodiversity and the sustainable use of natural resources; the reasoning behind the choice of PaMs and years for which their mitigation impacts were reported; the methodologies and assumptions used for the projections; the reasons for data inconsistency between the 2013 GHG inventory submission and the NC6; inconsistencies between the reported contributions to the Adaptation Fund in the NC6 and the first biennial report (BR1); and progress in the development of mechanisms for tracking private climate finance.

1. Completeness and transparency of reporting

8. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

2. Timeliness

9. The NC6 was submitted on 20 December 2013 before the deadline of 1 January 2014 mandated by decision 9/CP.16. A revised version of the NC6 was submitted on 25 April 2014. During the review, Belgium explained that this was done to correct some typographical errors in the English version that were found at the time of the preparation of the French translation.

3. Adherence to the reporting guidelines

10. The information reported by Belgium in its NC6 is mostly in adherence to the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

[2] Decision 15/CMP.1, annex, chapter II.
[3] FCCC/IDR.5/BEL.

Table 1
Assessment of completeness and transparency issues of reported information in the sixth national communication of Belgium[a]

Sections of national communication	*Completeness*	*Transparency*	*Reference to paragraphs*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to paragraphs*
Executive summary	Complete	Transparent		National systems	Complete	Mostly transparent	25
National circumstances	Complete	Transparent		National registries	Complete	Transparent	
Greenhouse gas inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
Policies and measures (PaMs)	Mostly complete	Mostly transparent	40–42	PaMs in accordance with Article 2	Complete	Mostly transparent	77
Projections and total effect of PaMs	Mostly complete	Partially transparent	81–84, 100, 101	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Mostly transparent	31, 36
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent		Information under Article 10	Complete	Transparent	
Financial resources and transfer of technology	Mostly complete	Mostly transparent	105, 106, 110	Financial resources	Mostly complete	Mostly transparent	105, 106
Research and systematic observation	Complete	Transparent		Minimization of adverse impacts in accordance with Article 3, paragraph 14	Mostly complete	Transparent	136
Education, training and public awareness	Complete	Transparent					

[a] A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions and recommendations.

FCCC/IDR.6

II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

1. Information on relevant national circumstances

11. In its NC6, Belgium has provided a detailed description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B below.

12. The information reported in the NC6 on the national circumstances, changes thereto and how these affect emissions and removals is complete and transparent. In its NC6, Belgium provided information on its institutional structure, population, and geographic, climatic and economic profiles, and how the changes in these circumstances affect GHG emission trends.

13. Belgium is a federal State composed of three language-based communities and three regions (Brussels-Capital, Flanders and Wallonia). Each of the regions has its own executive and legislative bodies, and the implementation of climate policy is therefore decentralized. Coordination between the different levels of government to ensure the consistency of national policy is conducted by cooperation bodies of different authorities.

14. During the review, Belgium provided additional information, elaborating on the institutional structure and the coordination of climate policy at the national and European levels, as well as on the allocation of roles at the federal, regional and community levels in the development and implementation of climate change activities.

15. The major drivers of GHG emission trends in Belgium are its growing population, changes in primary energy use and changes in overall economic activity, such as the closure of some industries. In 2011, international migration made up around three quarters of the approximate 0.6 per cent annual population growth. Since 1990, primary energy intensity has declined, reflecting the decoupling of economic growth from primary energy consumption. Total final energy consumption decreased annually by 0.06 per cent between 2000 and 2011. From 2000 to 2011, electricity generation in Belgium rose by an annual average rate of 0.7 per cent. The share of renewable energy has progressed significantly over the last decade, reaching 7.9 per cent in 2011. Over the longer term, renewable energy is expected to make up a very significant share of primary energy production in Belgium.

16. Owing to Belgium's location as a transit country and an export-dominated economy, transport is a constantly growing sector with rapid growth, particularly in road and air transport. With regard to industry, there has been a declining trend in metallurgy and textile enterprises since the 1960s. Although agricultural land in use has remained relatively stable, the number of farms has continued to decline significantly in recent years. Organic agriculture is developing rapidly.

17. The ERT noted that during the period 1990–2012, Belgium's population and gross domestic product (GDP) increased by 10.8 and 45.4 per cent, respectively, while GHG

emissions per GDP and GHG emissions per capita decreased by 43.9 and 26.5 per cent, respectively. These findings show that Belgium achieved a relative decoupling of GHG emissions from energy demand, which becomes more visible in the years since 2005. Table 2 illustrates the national circumstances of Belgium by providing some indicators relevant to GHG emissions and removals.

Table 2
Indicators relevant to greenhouse gas emissions and removals for Belgium

	1990	*2000*	*2005*	*2010*	*2012*	*Change 1990–2012 (%)*	*Change 2011–2012 (%)*
Population (million)	9.97	10.25	10.47	10.88	11.05	10.8	0.6
GDP (2005 USD billion using PPP)	250.15	311.63	337.30	357.89	363.64	45.4	0.1
TPES (Mtoe)	48.29	58.57	58.75	60.55	55.95	15.9	5.7
GHG emissions without LULUCF (kt CO_2 eq)	142 952.13	145 857.16	142 069.80	130 610.94	116 520.32	18.5	3.0
GHG emissions with LULUCF (kt CO_2 eq)	142 117.73	145 264.40	140 888.53	129 344.98	115 139.06	19.0	3.2
GDP per capita (2005 USD thousand using PPP)	25.09	30.40	32.22	32.89	32.91	31.2	0.8
TPES per capita (toe)	4.84	5.71	5.61	5.57	5.06	4.5	6.3
GHG emissions per capita (t CO_2 eq)	14.34	14.23	13.57	12.00	10.54	26.5	3.6
GHG emissions per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.57	0.47	0.42	0.36	0.32	43.9	2.9

Sources: (1) GHG emissions data: Belgium's 2014 GHG inventory submission, version 1.5; (2) Population, GDP and TPES data: International Energy Agency.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, PPP = purchasing power parity, TPES = total primary energy supply.

2. Information on the greenhouse gas inventory, emissions and trends

18. Belgium has provided a summary of information on GHG emission trends for the period 1990–2011. This information is partly consistent with the 2013 national GHG inventory submission. Summary tables, including trend tables for emissions in carbon dioxide equivalent (CO_2 eq) (given in the common reporting format (CRF) tables), are provided in an annex to the NC6. During the review, the ERT took note of the 2014 annual submission, and the relevant information therein is reflected in this report. The ERT noted that the emissions and removals from 1990 to 2011 provided in the NC6 are different from those presented in the latest CRF tables in the 2013 national GHG inventory submission. During the review, Belgium explained that the data in the NC6 relate to the 2013 national GHG inventory submission of April 2013. However, the CRF tables were resubmitted in November 2013 as a result of recalculations performed in response to the questions raised

by the ERT during the review of the 2013 national inventory submission which led to this inconsistency. The ERT encourages Belgium to make efforts to ensure consistency between the GHG inventory data in the national communication (NC) and the latest national GHG inventory submission of the submission year and provide transparent explanations for the differences, if any, between the GHG inventory data reported in the NC and in the national inventory submission including, to the extent possible, those arising from the resubmission of the GHG inventory.

19. Total GHG emissions[4] excluding emissions and removals from LULUCF decreased by 16.0 per cent between 1990 and 2011, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 16.3 per cent over the same period. According to the 2014 inventory submission, total GHG emissions decreased by 19.0 per cent with LULUCF and by 18.5 per cent without LULUCF between 1990 and 2012.

20. Over the reporting period, GHG emission trends were driven by a substantial reduction in the emission intensity of the economy, caused by the switch from solid fuels to gaseous fuels, the promotion of renewable energy sources (RES) and energy efficiency measures. The closure of some iron and steel works over the past few years, a decrease in the livestock population and changes in agricultural practices also led to a decrease in emissions. This more than offset the significant increase in emissions from the transport sector caused by a rise in the number of passenger cars and other vehicular traffic. Belgium has been able to achieve a significant reduction in GHG emissions despite sustained economic growth (a 45.4 per cent increase in GDP per capita during the period 1990–2012) and population growth (10.8 per cent growth in the same period). This indicates a decoupling of emissions from economic growth. An analysis of the drivers of GHG emission trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from 1990 to 2012.

21. Carbon dioxide (CO_2) represented the greatest share of total GHG emissions in 2012 at 86.4 per cent. CO_2 emissions decreased by 15.4 per cent between 1990 and 2012. The trend for CO_2 emissions is similar to the overall trend for total GHG emissions, and the same is true for the drivers behind the trend. Methane (CH_4) and nitrous oxide (N_2O) had similar shares of total GHG emissions in 2012 at 5.5 and 6.0 per cent, respectively. While CH_4 emissions steadily decreased over the entire period 1990–2012 because of a decline in the livestock population and policies implemented in the agriculture and waste sectors, N_2O emissions fluctuated in the period 1990–2000, returning to nearly the same level in 2000 as in 1990, and have decreased steadily since 2000. The emissions of CH_4 and N_2O in 2012 were 3.8 per cent and 35.9 per cent lower, respectively, than in 1990.

22. Emissions of fluorinated gases (F-gases) accounted for 2.4 per cent of total GHG emissions in 1990 and 2.1 per cent of total GHG emissions in 2012. F-gas emissions decreased by 27.2 per cent during the period 1990–2012. However, there are significant differences in trends among F-gases. While emissions of sulphur hexafluoride (SF_6) and perfluorocarbons (PFCs) decreased by 92.9 and 87.5 per cent, respectively, over the period 1990–2012, emissions of hydrofluorocarbons (HFCs) increased by 386.9 per cent during the period 1992[5]–2012. The overall increase in HFC emissions was due to the use of HFCs as substitutes for ozone-depleting substances.

23. During the review, Belgium provided additional information, elaborating on the key category analysis of the GHG emissions and the factors underlying the emission trends of some key sectors, such as energy and industrial processes. However, the information on

[4] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified.

[5] 1992 is the first year for which Belgium has reported emissions of SF_6.

how the total GHG emissions are split between emissions from sources covered by the European Union Emissions Trading System (EU ETS) and emissions from sources not covered by the EU ETS (non-ETS) is not provided. The ERT noted that this information would greatly enhance the transparency of the reporting in the next NC.

Table 3

Greenhouse gas emissions by sector in Belgium, 1990–2012

	GHG emissions (kt CO_2 eq)				*Change (%)*		*Share[a] by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*1990–2012*	*2011–2012*	*1990*	*2012*
1. Energy	112 294.38	116 914.36	106 866.22	94 399.76	-15.9	-3.0	78.6	66.0
A1. Energy industries	29 992.69	28 529.56	26 499.46	22 878.96	-23.7	-1.0	21.0	16.0
A2. Manufacturing industries and construction	32 847.82	33 401.45	23 819.74	20 972.93	-36.2	-9.3	23.0	14.7
A3. Transport	20 688.13	24 746.46	27 160.20	24 947.85	20.6	-7.6	14.5	17.5
A4–A5. Other	27 823.24	29 605.41	28 838.14	25 123.19	-9.7	-6.6	19.5	17.6
B. Fugitive emissions	942.50	631.48	548.67	476.84	-49.4	-4.8	0.7	0.3
2. Industrial processes	15 767.55	15 696.32	12 283.65	11 172.85	-29.1	-4.5	11.0	7.8
3. Solvent and other product use	204.40	186.28	183.12	182.88	-10.5	-0.1	0.1	0.1
4. Agriculture	11 439.45	10 673.50	9 584.27	9 256.53	-19.1	-1.9	8.0	6.5
5. LULUCF	834.40	592.76	-1 265.96	1 381.26	65.5	18.3	NA	NA
6. Waste	3 246.34	2 386.69	1 693.68	1 508.30	-53.5	-2.0	2.3	1.1
GHG total with LULUCF	**142 117.73**	**145 264.39**	**129 344.98**	**115 139.06**	**-19.0**	**-3.2**	**NA**	**NA**
GHG total without LULUCF	**142 952.13**	**145 857.16**	**130 610.93**	**116 520.31**	**-18.5**	**-3.0**	**100.0**	**100.0**

Source: Belgium's 2014 GHG inventory submission, version 1.5 (for GHG emission data).

Note: The changes in emissions and the share by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA= not applicable.

[a] The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions that was offset by GHG removals through LULUCF.

3. National system

24. Belgium provided in its NC6 a description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The description includes all the elements mandated by decision 15/CMP.1. The NC6 also contains a reference to the latest national inventory report (NIR) regarding a description of the process for the development of emission estimates. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of the GHG inventory of Belgium submitted in 2013. The ERT took note of the fact that Belgium

reported no changes in its national system since the 2013 national GHG inventory submission.

25. The ERT noted that information on the process of data collection is not described in a transparent manner in the NC6. During the review, Belgium provided additional information on the data collection process and made a reference to the 2014 NIR. The ERT recommends that Belgium include more transparent information on the process of data collection in the next submission or provide a cross-reference to the NIR where that information is reported to improve the transparency of its reporting.

26. The ERT noted that the contact information of the single national entity responsible for the national inventory has not been provided in the main text of the NC6, although it has been included in an annex to the NC6. The ERT encourages Belgium to include this information in the main text of the next NC to improve the transparency of its reporting.

4. National registry

27. In its NC6, Belgium has provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT took note of the review of the changes to the national registry as reflected in the report of the individual review of the GHG inventory of Belgium submitted in 2013.

28. In its NC6, Belgium described the changes, specifically due to the centralization of the EU ETS operations into a single EU registry operated by the European Commission and called the Consolidated System of European Union registries (CSEUR). The CSEUR is a consolidated platform which implements the national registries in a consolidated manner and was developed together with the new EU registry.

29. During the review, Belgium provided additional information, elaborating on recent changes, including the results of the "Annex H" test carried out in February 2014 to assess conformity with data exchange standards between the registry systems described in the 2014 NIR. The ERT noted the usefulness of this information and suggests that Belgium include it in the next NC, including by adding cross references to the relevant sections of the NIR.

5. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol

30. Belgium has reported in its NC6 information on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol. More detailed information is presented in chapter II.B.1 of this report.

31. During the review, Belgium further explained the allocation of roles among the federal government, regions and communities in the development and implementation of climate change activities. Marine protection, the coordination of international environmental policy and tax policy fall primarily under the responsibility of the federal government, while the development and implementation of measures in particular sectors and foreign trade are carried out at the regional level. Research and education are covered by all levels, including the language community level. The ERT was informed of recent developments in legal arrangements relating to the sixth Belgian State reform dedicated to the rearrangement of rights and obligations (specifically climate responsibility mechanisms and substitution rights) among the federal and regional levels. The ERT recommends that Belgium include information on recent changes in the domestic and regional legislative arrangements and enforcement and administrative procedures the Party has in place to meet its commitments under the Kyoto Protocol in the next NC.

32. In the Belgian federal system, responsibilities and policymaking powers are divided among the federal government and the three regions (Brussels-Capital, Flanders and Wallonia) or among the federal government and the three communities according to areas of competence. Implementation of climate change policies is based on joint plans agreed by the federal and regional governments, which set up their own priorities and goals. The overall responsibility for national climate change policymaking lies within the National Climate Commission (NCC) under the auspices of the Inter-ministerial Conference for the Environment (ICE).

33. Implementation of the Kyoto Protocol is underpinned by PaMs contained in the National Climate Plan (NCP). The NCP is essentially a compilation of measures from regional and federal climate plans to enable Belgium to meet its obligations under the Kyoto Protocol. These measures largely follow requirements in EU-level policies on emissions trading and Kyoto Protocol mechanisms, as well as the energy, transport, agriculture and waste management sectors. The NCP was approved by the NCC in 2009 for the period 2009–2012 and contains the national burden-sharing agreement pursuant to Belgium's Kyoto Protocol target for the first commitment period (2008–2012).

34. The NCP provides the legal basis for decisions to be taken to implement commitments entered into by Belgium under the 2020 EU climate and energy package for the second commitment period of the Kyoto Protocol. The EU 2020 climate and energy package obliges EU member States to meet a joint target of the 28 EU member States and Iceland to reduce GHG emissions by 20.0 per cent below the 1990 level during the second commitment period of the Kyoto Protocol (2013–2020). While the NCC has decided to further extend the NCP to cover the second commitment period of the Kyoto Protocol, the planned extension is still in the drafting stage, with national burden-sharing yet to be finalized.

35. Public access to environmental information in Belgium, including legislative instruments and PaMs developed under the Kyoto Protocol, is regulated at the federal level and in the regions by the legislation transposing the EU directive on public access to environmental information (directive 2003/4/EC) developed based on the first pillar of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. This has been reflected in various legislative and regulatory initiatives at both the federal and regional levels.

36. In its NC6, Belgium has provided information on national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources. However, the information has not been clearly consolidated and described in one place. During the review, Belgium provided additional information on specific regional legislation in force at the federal and regional levels. Forest management policies are established in each region to ensure the sustainable management of forests, including forest certification. Key legislative arrangements limiting clear-cutting and deforestation include the Forest Decree (1990) and the Forest Code (2008) in the Flemish and Walloon Regions, respectively. There is also legislation promoting biodiversity conservation and the plantation of species suited to the local soil and climate. The ERT recommends that Belgium provide comprehensive and transparent information on this in its next NC, and suggests that Belgium include short descriptions on specific legislative arrangements in each region, as provided during the review.

B. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol

37. Belgium has provided in its NC6 extensive information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol.

1. Policies and measures related to implementation of commitments under the Convention

38. In its NC6, Belgium reported on its PaMs adopted, implemented and planned in achieving its commitments under the Convention. Belgium provided information on PaMs by sector and by gas and a description of the principal PaMs. The NC6 contains, with a few exceptions, a set of PaMs similar to those in the NC5. Belgium reported on its policy context and national targets and objections set to implement its commitments under the Convention.

39. In its NC6, Belgium gave priority to those PaMs adopted, implemented and planned that provide the most significant contribution to its emission reduction efforts, including those that were adopted and implemented at the regional and federal levels. The PaMs are classified in clusters or groups according to the main focus areas. The descriptions, including the summary table in annex 3 to the NC6, provide information on the name, objective, sector, gas affected, type of instrument, status and start year of implementation. Belgium reported on two measures that are no longer in place: tax relief on energy-saving investments in private homes and tax relief for 'clean' vehicles. The ERT noted that no recommendations for improving reporting in the NC6 that were made in the review report of the NC5 were taken into consideration.

40. In its NC6, Belgium did not include information required by the UNFCCC reporting guidelines on NCs on how Belgium believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention. The ERT recommends that Belgium provide comprehensive information on how it believes its PaMs are modifying longer-term trends in emissions and removals in the next NC.

41. The ERT noted that the main text of the NC6 refers to the gradual replacement of old cast iron pipes with steel or polymer installations in the distribution of natural gas as a measure with significant impact on CH_4 emissions. However, it is not reported in the summary table containing all PaMs. During the review, Belgium explained that the replacement of these pipes is done for security and maintenance reasons and is not explicitly part of its climate change PaMs. It is therefore considered part of 'business as usual' operations in the GHG projection scenarios (see chapter 5 of the NC6) and as such not reported as a PaM. Similarly, the Biomass Observatory listed among horizontal measures in the agriculture and forestry sector in table 4.8 is neither described in the text of the NC6 nor reported in the PaMs summary table. During the review, Belgium clarified that this measure has recently been abandoned. The ERT recommends that Belgium ensure consistency in the information on PaMs in the different sections of the NC by addressing these discrepancies to improve the transparency of its reporting in the next NC.

42. The ERT noted that the PaMs summary table mentions 2004 as the start year of the majority of PaMs, but that it appears that different PaMs started in different years according to the textual description. During the review, Belgium informed the ERT that 2004 was taken as the start year because that was the year when the burden-sharing agreement between the federal and regional authorities for the first commitment period of the Kyoto Protocol (2008–2012) was made. The ERT recommends that Belgium ensure consistency

between the information reported in the summary tables and the textual descriptions provided and suggests that Belgium report the actual start years for different PaMs to improve the transparency of its reporting in the next NC.

43. The NC6 does not include information on mitigation impacts in the agriculture and waste sectors. The mitigation impacts of PaMs are presented only for broad clusters consisting of a large number of PaMs. The NC6 cites difficulty in estimating the mitigation impacts of individual PaMs due to issues such as uncertainties, double counting, 'windfalls' multiplier and rebound effects. The ERT noted that due to the lack of information on the mitigation impacts of individual PaMs, it is not clear which PaMs make the most significant contributions to emission reductions. The ERT encourages Belgium to provide information on mitigation impacts for the agriculture and waste sectors. The ERT further encourages Belgium to explore the possibility of estimating the mitigation impacts for the individual PaMs reported to improve the transparency of its reporting.

44. The NC6 of Belgium contains a list of cross-sectoral PaMs at the end of the PaMs summary table. However, no textual description or reasons for the inclusion of these PaMs has been provided in the NC6. The ERT encourages Belgium to include in its next NC a textual description of cross-sectoral PaMs to improve the transparency of its reporting.

45. In its NC6, Belgium has not provided information on how progress with PaMs to mitigate GHG emissions is monitored and evaluated over time. During the review, Belgium provided additional information, elaborating on the procedures and indicators for monitoring progress with PaMs. The NCC is in charge of the regular assessment of the implementation of the NCP. It uses two sources to monitor and evaluate PaMs: GHG emission projection models, enabling a 'rough' estimation of the impact of PaMs, and a database containing PaM impact indicators with regular updates by the Permanent Secretariat of the NCC. The ERT encourages Belgium to include information on this, including the information provided during the review, in its next NC.

46. The NC6 does not include information on the costs of PaMs; the non-GHG mitigation benefits of PaMs (e.g. reduction of pollution and health benefits); and how the PaMs interact with other PaMs at the national level, including how they complement each other in terms of GHG mitigation. The ERT reiterates the encouragement from the review report of the NC5 to provide information on these elements in the next NC.

2. Policy framework and cross-sectoral measures

47. As Belgium is a federal State, its climate PaMs are developed and implemented at two government levels: federal and regional. The Flemish Mitigation Plan 2013–2020 was adopted in June 2013. While the Brussels-Capital Region has already adopted the Brussels Air-Climate-Energy Code (COBRACE), and its Air-Climate-Energy Plan is currently in the process of being adopted, the Walloon Air-Climate-Energy Plan is currently undergoing public review. These regional policies are supplemented by federal level policies in areas under federal jurisdiction: taxation, product policy, security of energy supply/nuclear energy and territorial waters. Table 4 provides a summary of the reported information on the PaMs of Belgium.

48. The NCP is based on PaMs contained in the regional climate plans as well as those in areas for which the federal government is responsible. The main objectives of the NCP are to: formalize the major priority strategic PaMs to implement; set up a coordinated monitoring system to monitor the impacts of PaMs; initiate the development of a national climate change adaptation strategy; and prepare a long-term strategy to tackle climate change.

49. The overall responsibility for national climate change policymaking lies within the NCC under the auspices of the ICE. The NCC is composed of the members of federal and

regional governments and is supported by a permanent secretariat and civil servants from the federal government and regional administration. A number of dedicated working groups have been set up for the implementation of climate policy at the federal and regional levels. The Coordination Committee for International Environmental Policy is the main body responsible for the coordination of international climate change policy, excluding matters related to European climate policy, for which the Directorate General for Coordination and European Affairs (DGE) of the Federal Public Service Foreign Affairs, External Trade and Development Cooperation is responsible. The ERT noted that the responsible entity for national climate change decision-making is not clearly identified in the text of the NC6 and encourages Belgium to include that information in the next NC.

50. As an EU member State, Belgium is obliged to contribute towards the EU target as contained in the EU 2020 climate and energy package, which aims to reduce GHG emissions across member States by 20.0 per cent below 1990 levels by 2020. The EU target for reducing GHG emissions has been subdivided into targets for the EU ETS and non-ETS sectors. The overall EU target for GHG emission reductions from the non-ETS sectors is 10.0 per cent below the 2005 level. Different EU member States have differentiated targets for the non-ETS sectors ranging from –20.0 per cent to +20.0 per cent.

51. The most important cross-cutting policy/measure in terms of total GHGs covered is the EU ETS, which was launched in 2005. It covers mainly point sources from the energy, industrial and aviation sectors. For the period 2013–2020, an EU-wide cap is in place, reducing emissions by 21.0 per cent by 2020 compared to the 2005 level, including by 1.74 per cent annually over that period.

52. Belgium's legally binding target for the non-ETS sectors is to reduce emissions in the non-ETS sectors by 15.0 per cent by 2020 below the 2005 level. The PaMs in the non-ETS sectors largely derive from EU policies in the energy production and transmission, transportation, agriculture and waste management sectors. The non-ETS emission reduction target for Belgium is to be divided among the three regions and the federal government.

53. Discussion on the distribution of the national target among the federal government and three regions is still ongoing for the second commitment period of the Kyoto Protocol (2013–2020). The ERT noted that regional targets and the development of the associated PaMs will have to be closely aligned with Belgium's national targets under the EU 2020 climate and energy package in order to enable Belgium to meet them. To ensure consistency between the national targets and the associated PaMs, the NCP will need to be updated after the adoption of all the regional plans. In the present situation in Belgium, where PaMs and targets are discussed separately, the monitoring of the implementation of PaMs and the regular evaluation of their effects are very important. Acknowledging this need, Belgium has adopted the Law on climate responsibilisation of regions, which seeks to enforce the implementation of measures by the regions.

Table 4
Summary of information on policies and measures reported by Belgium

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Policy framework and cross-sectoral measures	EU ETS	NE
	Kyoto Protocol mechanisms	NE
Energy		

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (kt CO_2 eq)*
Energy production and conversion	Green certificates and combined heat and power certificate system	10 947 (2020) 8 241 (2015) 623 48 (2009)
Renewable energy sources	Action Plan for Renewable Energies and Cogeneration	2 356 (2020) 1 164 (2015) 30 40 (2009)
Energy efficiency, including residential and commercial building sectors	Long-term energy CO_2 efficiency agreements in the industrial sector	1 800 (2020) 856 (2015) 2 119 (2009)
	Energy performance and certification of buildings	147 (2020) 72 (2015) 2 44 (2009)
	Financial support for reduced energy use and the use of renewable energy sources in the residential sector	1 823 (2020) 989 (2015) 3 552 40 (2009)
Transport	Improvement and promotion of public transport	3 440 (2020) 2 386 (2015) 1 473 25 (2009)
Industrial sectors		
Industrial processes	Specific emission reduction agreement with nitric acid producers	3 361 (2020) 3 361 (2015) 2 705 (2009)
	HFC and PFC emission reduction targets	NE
Agriculture	Rational use of energy in agriculture	NE
	Reduction of GHG emissions from use of fertilizers and manure	NE
Forestry	Limitation of deforestation and promotion of reforestation	NE
Waste management	Reduction in the production of waste	NE
	Optimization of waste incineration	NE
	Landfill biogas flaring and recuperation	NE

Note: The GHG emission reduction estimates given for some measures are reductions in carbon dioxide or carbon dioxide equivalent for 2009, 2015 and 2020.

Abbreviations: EU ETS = European Union Emissions Trading System, GHG = greenhouse gas, NE = not estimated.

3. Policies and measures in the energy sector

54. Between 1990 and 2012, GHG emissions from the energy sector decreased by 15.9 per cent (17,894.62 kt CO_2 eq). Within the energy sector, while emissions from energy industries decreased by 23.7 per cent (7,113.73 kt CO_2 eq), those from manufacturing industries and construction decreased even more sharply, by 36.2 per cent (11,874.89 kt CO_2 eq). However, the overall decrease was, to some extent, attenuated by the significant growth in transport sector emissions (by 20.6 per cent, or 4,259.71 kt CO_2 eq).

55. With regard to energy supply, the main drivers of the decrease in emissions are the increase in combined heat and electricity production, the increased share of RES and the switch from solid and liquid fuels to gaseous fuels (natural gas). The decrease in manufacturing industries and construction was due to technological improvements leading to significant reductions in energy consumption in industries such as iron and steel, chemicals, and food processing/beverage industries. The significant increase in transport sector emissions, on the other hand, was largely due to substantial increases in emissions from road transport. Residential and commercial sector emissions increased up to the mid-1990s due to an increase in the number of dwellings and employees. However, this increase has been offset by the replacement of fuel oil by natural gas since 1995 and increased energy efficiency.

56. ***Energy supply***. The primary energy supply in Belgium is 38.2 per cent oil, 25.7 per cent gas, 18.8 per cent from nuclear energy and 10.4 per cent RES (10.3 per cent biomass and other renewables and 0.1 per cent hydropower). Total energy imports have increased by 30.5 per cent since 1990 and are currently nearly five times the domestic energy production. Since 1990, there has been a clear trend of switching from coal to natural gas in electricity production, with an increase of 75.9 per cent in energy production from gas coupled with a 72.0 per cent decrease in energy production from coal. Total primary energy consumption per capita increased by 4.5 per cent between 1990 and 2012.

57. The PaMs related to energy supply aim to promote combined heat and power (CHP) production by requiring energy suppliers to purchase a minimum quota of CHP certificates for electricity production. The federal government has also taken some measures aiming to make it costlier to use coal and other fossil fuels for electricity production, such as levies on their consumption as well as the withdrawal of excise duty exemptions for them.

58. ***Renewable energy sources***. The strategy developed in the NCP focuses on the promotion of RES by market-based instruments such as green certificates. Several market-based instruments, such as green certificates for renewable energy and cogeneration in the Walloon and Brussels-Capital Regions and separate certificates for renewable energy and cogeneration in the Flemish Region, have been implemented. Some PaMs, including the granting of concessions at sea for the installation of offshore wind farms, will contribute to emission reductions in the future as the commissioning of offshore wind farms is still ongoing.

59. ***Energy efficiency***. There are PaMs focusing on energy efficiency in energy production as well as consumption at the federal and regional levels. In Flanders, energy planning is required for every high-energy consumer industrial site. The federal government promotes energy-efficient electric appliances through the setting of energy efficiency performance standards and the labelling of products.

60. ***Residential and commercial sectors***. The two most important PaMs for residential and commercial buildings are related to the transposition of the EU directives on the energy performance of buildings (2002/91/EC and 2010/31/EU) and financial incentives for renovation in the form of regional premiums and federal tax deductions.

61. The EU directives lead to increasingly stringent regulations introduced between now and 2020 with a view to achieving very low energy or 'zero carbon' performance in new buildings and through major renovations of buildings. The regions are also creating their own performance certification systems that inform owners, users, potential tenants and buyers about a building's energy performance.

62. The three regions have introduced financial mechanisms (premiums) for the renovation of existing buildings, aimed at saving energy and promoting the use of renewable energy. There are funds that aim to improve the energy performance of existing buildings, such as a fund to reduce the overall cost of energy for the most unprivileged

people and FEDESCO, a public limited company for improving the energy efficiency of federal authority buildings.

63. ***Transport sector***. The transport sector PaMs in the NCP focus on the promotion of a modal shift from private cars to public transport; the development of goods transport by rail or inland waterway; and the provision of financial incentives guiding user choice towards vehicles with lower energy consumption.

64. Along with major ongoing public projects aiming to diversify the provision of passenger and freight transport, there are programmes promoting the use of bicycles, teleworking and eco-driving at the federal and regional levels. Belgium has also adopted a range of taxation-based PaMs relating to road transport. In 2011, the three regional governments concluded a tax agreement that will reduce the environmental impact associated with road transport and internalize the costs. Belgium is also planning to bring its biofuels policy in line with the EU legislation on biofuels.

65. ***Industrial sector***. Energy use in industry is mainly covered by the EU ETS (see para. 51 above). In addition, a set of sectoral agreements have been concluded between the Flemish and Walloon governments and their main industries. In Wallonia, these relate to improving energy efficiency and reducing the associated emissions on the sites concerned. In Flanders, there are two types of agreements: 'benchmark agreements' for the major energy consumers and 'audit agreements' for medium-sized consumers. These agreements cover more than 80 per cent of final energy consumption by industry in each of the two regions.

4. Policies and measures in other sectors

66. Between 1990 and 2012, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased by 27.9 per cent (8,537.17 kt CO_2 eq).

67. ***Industrial processes***. Between 1990 and 2012, GHG emissions from the industrial processes sector (excluding solvent and other product use) decreased by 29.1 per cent (4,594.71 kt CO_2 eq). The GHG emissions from solvent and other product use decreased by 10.5 per cent (21.52 kt CO_2 eq) in the same period. The decrease was mainly due to the decrease in output, especially in the metal industry in recent years, the global financial crisis and technological improvements. There was some increase in emissions in 2010 and 2011 due to a boost in economic activity. However, it was followed by a drop in 2012 due to a persistent unfavourable economic situation.

68. The EU ETS is a key PaM for the industrial processes sector (see para. 51 above). There are also other PaMs addressing F-gases and N_2O emissions. The PaMs related to F-gases are in accordance with the relevant EU regulations and directives (EU regulation 842/2006 and directives 2006/40/EC and 2000/53/EC). The three regions have adopted regulations relating to the use of stationary refrigeration, air-conditioning and heat pump equipment containing refrigerant gases, as well as regulatory provisions for the approval of technicians responsible for the installation and maintenance of stationary applications containing fluorinated refrigerant gases. The PaMs relating to N_2O emissions from nitric acid and caprolactam production address emissions from a limited number of manufacturers through specific agreements between regional governments and the manufacturers.

69. ***Agriculture***. Between 1990 and 2012, GHG emissions from the agriculture sector decreased by 19.1 per cent (2,182.93 kt CO_2 eq), mainly owing to a general reduction in the livestock population, the shift from dairy cattle to brood cattle, and the reduced application of mineral fertilizers to soils.

70. The PaMs in the agriculture sector are greatly influenced by the measures required from member States under the EU Common Agricultural Policy. These mainly relate to the rational use of energy in agriculture; the limitation of CH_4 and N_2O emissions; and biomass production for energy purposes. In the Flemish Region, the rational use of energy is promoted through the application of best available technologies by the Flemish authorities via financial instruments, energy consultants and the supply of technological services. In the Walloon Region, the Wood Energy Plan adopted in 2001 aims at setting up 10 projects for automatic heating systems using wood, gas generators or other technologies modified to make use of the energy value of wood. Rural development plans are supplemented by specific measures for the rational use of organic and nitrogen-based fertilizers. However, the ERT noted that the reporting on PaMs aimed at the rational use of energy in agriculture is not consistent with the GHG inventory and projections, and therefore encourages Belgium to report them under the energy sector.

71. ***LULUCF***. The LULUCF sector was a net removal of 1,381.26 kt CO_2 eq in Belgium in 2012 and net GHG removals increased by 546.86 kt CO_2 eq since 1990. The trend was mainly driven by the accumulation of carbon in living biomass in forests that has been relatively stable since 2002. This sink is partially offset by emissions from soil carbon, mainly related to land conversions to settlements and cropland.

72. The implementation of Natura 2000 through the designation of 1,500 km^2 of forests under special fixed management rules contributes to the preservation of forests. The Walloon Forest Code has introduced certain regulations favouring forest conservation and the maintenance of ligneous materials and carbon. The Flemish Region has an active forest expansion policy and has put in place strict regulations for the conservation and protection of Flemish forests. Other PaMs, such as the certification of forests, aim to preserve the ecological stability of the forests by reinforcing the concept of the sustainable management of forests.

73. ***Waste management***. Between 1990 and 2012, GHG emissions from the waste sector decreased by 53.5 per cent (1,738.04 kt CO_2 eq), mainly driven by a decrease in CH_4 emissions from solid waste disposal on land due to large-scale biogas recovery in landfills through flaring or for energy purposes.

74. The PaMs in the waste sector in Belgium are aimed at the reduction of waste; the optimization of waste incineration; landfill biogas recuperation and use; the quality control of biomass available for material recuperation and for energy use; and F-gas management and recovery by training certified personnel. Belgium prohibits the landfilling of organic waste. All existing landfills still controlled are equipped with biogas recovery systems, usually for electricity generation. All household waste incinerators are equipped with electricity-generating steam turbines. In Flanders, such electricity production is eligible for green certificates.

5. Policies and measures related to implementation of commitments under the Kyoto Protocol

75. Belgium reported on its package of PaMs adopted, implemented and elaborated in achieving its commitment under the Kyoto Protocol.

76. The NC6 includes information on how Belgium promotes and implements the International Civil Aviation Organization/International Maritime Organization decisions to limit emissions from aviation and marine bunker fuels. In its NC6, Belgium reported on the implementation of PaMs in international aviation adopted by the EU, specifically the EU directive on including aviation in the EU ETS (directive 2008/101/EC). The aviation sector has been incorporated in the EU ETS since 2012. The EU ETS limits emissions from aviation to be below the average annual emissions over the period 2004–2006 by 2020.

Belgium also explained the process of negotiations at the EU and international levels regarding the adoption of measures to reduce emissions from international shipping.

77. In its NC6, Belgium reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties. However, the ERT noted that the information is provided in different parts of the NC6 and as such is not sufficiently transparent. The ERT therefore recommends that Belgium consolidate the reported information in a separate section in the next NC to improve the transparency of its reporting. Further information on how Belgium strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in the 2014 annual submission, is presented in chapter III.B below.

78. The NC6 underlines that Belgium strives for its PaMs to not cause direct or indirect adverse effects on developing countries. Belgium's PaMs address not only fossil fuel combustion but also emissions of all gases covered by the Kyoto Protocol, thus ensuring a balanced distribution of efforts and limiting the potential impact of single measures that are too specific. Belgium, as a member State of the EU, designs and implements most of its policies within the framework of European Commission directives, regulations, decisions and recommendations (e.g. the liberalization of the electricity and natural gas markets and the EU ETS). Belgium has taken steps to reduce subsidies supporting the use of coal and other fossil fuels for energy production. Belgium's agricultural and biofuel policies are consistent with common EU policies, which tend to create market conditions that are more accessible to products from developing countries.

C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

79. In its NC6, Belgium has provided information on its projections for all GHG emissions, following the Intergovernmental Panel on Climate Change (IPCC) sector and source categories. Belgium also informed the ERT during the review that the updated projections have been prepared but are not yet available.

1. Projections overview, methodology and key assumptions

80. The GHG emission projections provided by Belgium in the NC6 include a 'with measures' and a 'with additional measures' scenario until 2020, presented relative to actual inventory data for 1990, 1995, 2000, 2005 and 2010. Projections are presented on a sectoral basis and on a gas-by-gas basis for the following GHGs: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case). Projections are also provided in an aggregated format for each sector as well as for a national total, using global warming potential values from the Fourth Assessment Report of the IPCC.

81. The ERT noted that the sectoral categories used in the projections are not fully consistent with those used in the PaMs section of the NC6. For example, the agriculture sector PaMs include those aimed at the rational use of energy by greenhouse crops, which is included under the energy sector in the GHG inventory and projections. The ERT therefore recommends that Belgium use, to the extent possible, the same categories in the projections section of the NC as those used in the PaMs section.

82. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately. Belgium uses a bottom-up approach to project emissions and validates these through a top-down approach. However, these projections are only reported using the top-down approach. It is not clear whether these emissions are included in the total projections in the bottom-up approach used by Belgium for reporting its projections. During the review, Belgium clarified that these have not been included in the bottom-up projections. The ERT recommends that Belgium clearly present its projections of the international transport emissions and the respective methodologies used, ensuring that these are not included in the totals.

83. The ERT noted that Belgium has not reported information on emissions in an aggregated format for each sector as well as for a national total in a transparent manner. The coverage of sectors is not completely transparent. For example, for the industry sector, it is not clear whether the emission projections include both fuel combustion and process-related emissions. The ERT recommends that Belgium provide transparent information on the coverage of each sector to improve the transparency of its reporting on projections in the next NC.

84. The NC6 does not include information on factors and activities for 1990 to 2020 driving the emission trends for all the sectors. During the review, Belgium provided more detailed information on the projections and drivers for the energy sector. The switch from solid fuels (coal) to gaseous fuels (natural gas), technology improvements and the increase in the number of CHP installations are projected to result in a decrease in emissions, even if the total energy consumption increases. The ERT took note of this information and recommends that Belgium provide information on factors and activities for each sector for the period 1990–2020, including the information provided during the review, to improve the completeness of its reporting. In its NC6, Belgium has not presented the information on projections graphically using diagrams. The ERT further encourages Belgium to present the information on projections using diagrams for greater transparency.

85. The base year for the 'with measures' and 'with additional measures' scenario projections is 2010, which is not the latest year for which inventory data are available in the NC6 (2011). Furthermore, the 2010 data used for the 'with measures' projections in the NC6 (table 5.17) are not the same as the actual inventory data in the CRF tables for 2010. During the review, Belgium informed the ERT that this discrepancy is due to the fact that the 2010 data reported in table 5.17 are modelled data and are not from the CRF tables. According to the UNFCCC reporting guidelines on NCs, the starting point for the 'with measures' and 'with additional measures' projections should generally be the latest year for which inventory data are available. The ERT encourages Belgium to report projections relative to the latest updated actual inventory data to enhance the transparency of its reporting in the next NC.

86. In its NC6, Belgium did not present emission projections for a 'without measures' scenario. In the NC6, Belgium explained that since its climate policies have been in place for many years, it has become difficult to assess the way energy use and GHG emissions would have evolved without these policies. The ERT noted that a 'without measures' projection could be used as a 'baseline' or 'reference' projection and its establishment would help to assess the total impact of PaMs. The ERT encourages Belgium to explore the possibility of assessing the trend of 'without measures' emissions and present it in its next submission.

87. The NC6 does not include: information on projections for the indirect GHGs such as carbon monoxide, nitrogen oxides and non-methane volatile organic compounds, as well as sulphur oxides; a description of the strengths and weaknesses of models; information on how the models account for any overlap or synergies that may exist between different PaMs; and information on the main differences in the assumptions, methods employed and results

between the NC6 and NC5 projections. The ERT encourages Belgium to provide this information in its next NC.

88. The projections reported by Belgium in its NC6 are the sum of three bottom-up projections developed by the three regions (Brussels-Capital, Flanders and Wallonia), representing their respective climate strategies. While the main assumptions and key parameters were harmonized across the regions, some parameters reflecting the specificity of each region are different. In addition, the Belgian Federal Planning Bureau used a top-down projection at the country level for the 'with measures' scenario to validate the regional bottom-up projections. Regional projections were prepared using the Flemish energy and GHG simulation model for Flanders and the EPM (Energy/Emissions Projection Model) model for Brussels-Capital and Wallonia. The Belgian Federal Planning Bureau used HERMES (High-Elective Resolution Modelling Emissions System) to prepare the projections at the country level. The regional models are bottom-up simulation projection models for energy demand and atmospheric emissions covering most of the relevant sectors (energy, industry, residential/commercial and transport). HERMES is a macro-sectoral econometric model used by the Belgian Federal Planning Bureau for its national short-term and long-term forecasts. The ERT noted that the NC6 lacks information on the modelling structure, including how the input and output parameters in different sectors are linked. The methodologies used for the projections of emissions for sectors other than energy have also not been transparently described. The ERT encourages Belgium to provide transparent information on the projection methodologies for all sectors to improve the transparency of its reporting in the next NC.

89. For the energy sector, the bottom-up projections are based on assumptions regarding the evolution of electricity demand and the electricity production park as well as the import of electricity. The projections of energy use by industry are based on assumptions regarding the evolution of activity and emission intensity. However, these assumptions vary across the three regions due to differences in industrial activities. The projections of emissions from buildings and the commercial sector are based on the number of households and climate assumptions along with the impact of implemented PaMs. The transport sector projections are based on the evolution of kilometres travelled using different modes of transport and assumptions regarding the effect of PaMs on modal shift.

90. The projections of industrial process emissions in both the Flemish and Walloon Regions are mainly linked to growth rates of activity and mitigation measures. The F-gas emission projections were calculated using a specialized model. The agriculture sector projections are based on the number of livestock. The LULUCF sector projections were estimated by the Joint Research Centre of the European Commission in close collaboration with the Belgian administration, taking into account historical removals or emissions from forest management, the age-class structure of forests, PaMs implemented before 2009 and forest management activities.

91. The NC6 reports the following key assumptions for the years 2000, 2010, 2015 and 2020: GDP growth, demographic evolution, climate condition, fuel prices, CO_2 price, energy demand and supply, the shares of different energy sources in total domestic production, industrial activity, the percentage of emissions covered by the EU ETS, and livestock numbers. However, all parameters have not been provided for all the years, and some have been provided only for 2015 and 2020. The evolution of fuel and CO_2 prices was not explicitly taken into account in the bottom-up models. During the review, Belgium informed the ERT that many assumptions used in the projections have been updated, but did not provide specific information on the changes. The ERT encourages Belgium to provide information on the sectoral assumptions for all sectors, including in the building, transport, LULUCF and waste sectors, to enhance the transparency of its reporting in the next NC.

92. Belgium performed the sensitivity analyses for two parameters: number of degree days and nuclear phase-out. To identify the impact of colder and warmer weather on energy consumption, the sensitivity analysis has been carried out for two scenarios of 1,946 degree days and 1,538 degree days. Depending on whether the future climate is milder (1,538 degree days) or colder (1,946 degree days) than the 'mild' climate assumed in the 'with measures' scenario, CO_2 emissions from the buildings sector would be 1,743 kt CO_2 eq lower or 746 kt CO_2 eq higher, respectively, in 2020, representing 2.5 per cent and 1.1 per cent of the total annual emission allocation for 2020, respectively. Two scenarios for nuclear phase-out were also given in the NC6, relating to whether the 2003 Law on nuclear energy phase-out or the 2012 federal government proposal that seeks to postpone the shutdown of the Thilange I nuclear reactor from 2015 to 2025 is pursued. According to the sensitivity analysis, total CO_2 emissions would be about 1,330 kt CO_2 eq higher in 2020 if the 2003 Law is followed instead of the 2012 proposal. However, the ERT noted that the NC6 does not provide sensitivity analyses for some key factors, such as GDP growth, population growth and carbon price, which could be quite useful in understanding the robustness of the projections.

2. Results of projections

93. For the first commitment period under the Kyoto Protocol (2008–2012), the EU has committed to reducing GHG emissions on average by 8.0 per cent below the base-year emission level. Within the EU burden-sharing agreement, Belgium committed to reducing its emissions by 7.5 per cent below the base year (1990) level. Based on the 2014 inventory submission, Belgium's total cumulative emissions for the period 2008–2012 amounted to 626,308.78 kt CO_2 eq, while its assigned amount agreed in the initial review report under the Kyoto Protocol is equal to 673,995.53 kt CO_2 eq, which is 7.6 per cent below its cumulative total emissions for the same period.

94. Based on the information reported in the NC6, Belgium is in a position to achieve its Kyoto Protocol target for the first commitment period based on domestic measures alone. However, taking into account the internal burden-sharing in Belgium and the allocation of assigned amount units (AAU) to the EU ETS and non-ETS sectors, Belgium plans to use units from the Kyoto Protocol mechanisms in the amount of 48,514 kt CO_2 eq for meeting its target in the first commitment period of the Kyoto Protocol.

95. For the EU, the target for the second commitment period of the Kyoto Protocol is to reduce emissions by 20.0 per cent by 2020 compared with the 1990 level in accordance with decision 1/CMP.8. This target will be fulfilled jointly by the EU and its member States through the implementation of the EU 2020 climate and energy package, which set the basis for emission reductions by 21.0 per cent by 2020 compared with the 2005 level from installations covered by the EU ETS, and by 10.0 per cent for emissions from the non-ETS sectors (primarily transport, buildings, some industrial processes, agriculture and waste). Under the effort-sharing decision (ESD), Belgium's target is to reduce its non-ETS emissions by 15.0 per cent by 2020 compared with the 2005 level.

96. According to the NC6, total GHG emissions by 2020 are projected to be 15.6 per cent and 16.9 per cent below the 1990 level in the 'with measures' and 'with additional measures' scenarios, respectively. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 5 and the figure. The NC6 does not provide separate projections for the non-ETS sectors. However, it reports that the projected emissions for the non-ETS sectors by 2020 in the 'with additional measures' scenario will be 75,700 kt CO_2 eq, which will not be sufficient to reach Belgium's target for the non-ETS sectors for 2020 of 66,700 kt CO_2 eq. The NC6 also reports that due to a lack of clarity on internal burden-sharing with regard to the ESD among the regions, there is also a lack of clarity on how to

reach the target at both the regional and federal levels. The ERT noted that providing separate projections of emissions by sectors covered by the EU ETS and non-ETS sectors would greatly enhance the transparency of the reporting on projections and enable an assessment of Belgium's progress towards its target for the second commitment period of the Kyoto Protocol.

97. As reported in the NC6, the most dominant gas continues to be CO_2, with its share projected to increase to 87.3 per cent in 2020 in the 'with measures' scenario, compared with 83.2 per cent in 1990. In contrast, the share of CH_4 is projected to decline from 5.5 per cent in 1990 to 5.0 per cent in 2020, whereas that of N_2O is projected to stay nearly the same as the 1990 level at around 6.0 per cent. The share of F-gases is also projected to decrease from 2.0 per cent in 1990 to 1.7 per cent in 2020.

98. Belgium reported its projections by sector in the NC6. GHG emissions from energy supply will decrease by 25.2 per cent by 2020 in both the 'with measures' and 'with additional measures' scenarios due to the shift in fuel from coal and oil to natural gas, the increased share of RES and cogeneration. There is no difference in the emission projections for energy supply for the 'with measures' and 'with additional measures' scenarios, as all the PaMs envisaged are included in the 'with measures' scenario. Emissions from industry are projected to decrease by 31.7 and 36.9 per cent in the 'with measures' and 'with additional measures' scenarios, respectively, mainly owing to the implementation of the EU ETS and the long-term voluntary energy and CO_2-efficiency agreements between regional governments and industries. Emissions from the transport sector are expected to increase by 30.6 per cent by 2020 in both scenarios due to the increase in vehicular traffic, despite a range of PaMs envisaged for promoting modal shift. This highlights the need for greater emphasis on modal shift than hitherto envisaged in the PaMs. Emissions from buildings, industrial processes, agriculture and waste continue to decrease, while removals from LULUCF are expected to increase due to PaMs supporting forest management and conservation.

Table 5

Summary of greenhouse gas emission projections for Belgium

	Greenhouse gas emissions (kt CO_2 eq per year)	*Changes in relation to the base year[a] level (%)*	*Changes in relation to the 1990 level (%)*
Kyoto Protocol base year[b]	145 728.76	NA	1.9
Kyoto Protocol target for the first commitment period (2008–2012)	134 799.11	–7.5	–5.7
Kyoto Protocol target for the second commitment period (2013–2020)[c]	Not available yet		
Quantified economy-wide emission reduction target under the Convention[d]	Not available yet		
Inventory data 1990[e]	142 952.13	–1.9	
Inventory data 2012[f]	116 520.32	–20.0	–18.5
Average annual emissions for 2008–2012[g]	125 261.76	–14.0	–12.4
'With measures' projections for 2020[h]	120 648	–17.2	–15.6
'With additional measures' projections for 2020[i]	118 760	–18.5	–16.9

[a] 'Base year' in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

[b] The Kyoto Protocol base year level of emissions is provided in the initial review report contained in document FCCC/IRR/2007/BEL.

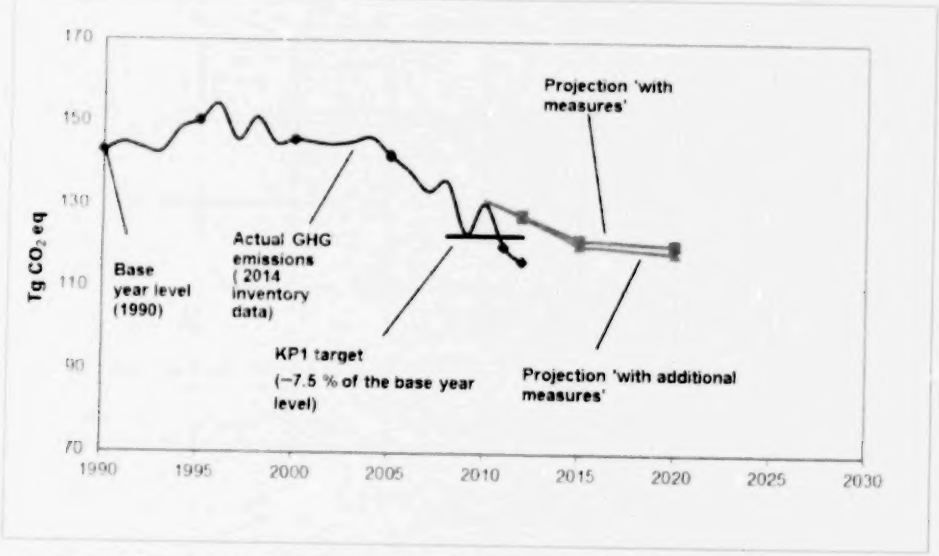
[c] The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target for the European Union and its 28 member States and Iceland. The target is to reduce emissions by 20.0 per cent by 2020 compared with the base year (1990) level. The target for sectors not covered by the European Union Emissions Trading System is 15.0 per cent for Belgium under the European Union effort-sharing decision.

[d] Quantified economy-wide emission reduction target under the Convention is a joint target for the European Union and its 28 member States and Iceland. The target is to reduce emissions by 20.0 per cent by 2020 compared with the base year (1990) level.

[e] Belgium's 2014 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.

[f] Belgium's sixth national communication.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2012: Belgium's 2014 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry. (2) Data for the years 2012–2020: Belgium's sixth national communication; the emissions are without land use, land-use change and forestry.

Abbreviations: GHG = greenhouse gas, KP1 = first commitment period of the Kyoto Protocol.

3. Total effect of policies and measures

99. In the NC6, Belgium has presented the estimated and expected total effect of some implemented and adopted PaMs in accordance with the 'with measures' scenario by aggregating the reduction effect of some PaMs for some sectors using a bottom-up approach. The information is presented in terms of total GHG emissions avoided or sequestered (on a CO_2 eq basis) in 2009, 2015 and 2020. Belgium did not report the total effect of planned PaMs.

100. The ERT noted that in estimating the expected total effect of implemented and adopted PaMs, the NC6 takes into account the effect of only some of them in the energy,

industry and transportation sectors only. The effect of PaMs in the agriculture, LULUCF and waste sectors is not included. In the industrial processes sector, the effect of PaMs relating to F-gases has not been estimated. The ERT also noted that – as the NC6 itself mentions – although possible interlinkages between the different PaMs are considered, double counting and overlap are still possible in this regard. The total mitigation effects of PaMs as reported in chapter 4 on PaMs are also different from those reported in chapter 5 on projections. The ERT therefore recommends that Belgium, in its next NC, provide an estimate of the total effect of its PaMs from all sectors in accordance with the 'with measures' definition, and that Belgium ensure consistency in the information reported in different sections of the NC, to improve the transparency of its reporting.

101. According to the NC6, the emission reduction potential of the implemented and adopted PaMs is around 19,750 kt CO_2 eq in 2015 and 27,300 kt CO_2 eq in 2020. However, these figures differ from the total mitigation effects of PaMs for the years 2015 and 2020 given in the chapter on PaMs (chapter 4) which are 19,923 and 27,658 kt CO_2 eq, respectively. The ERT recommends that Belgium ensure consistency in the figures reported for the total effect of PaMs in different sections of the NC to improve the transparency of its reporting in the next NC. The PaMs in the energy sector will deliver the largest emission reductions, followed by the industry sector. The most effective PaMs and their drivers are described in chapter II.B above. Table 6 provides an overview of the total effect of PaMs reported by Belgium.

Table 6
Projected effects of planned, implemented and adopted policies and measures in 2020 and 2030

Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*	*Effect of planned measures (kt CO_2 eq)*	*Relative value (% of 1990 emissions)*
	2020				*2030*			
Energy (without transport)	15 766	17.2	NA		NA		NA	
Transport	4 654	22.5	NA		NA		NA	
Industrial processes	7 237	45.9	NA		NA		NA	
Agriculture	NA		NA		NA		NA	
Land use, land-use change and forestry	NA		NA		NA		NA	
Waste management	NA		NA		NA		NA	
Total	**27 658**	**19.3**	**NA**	–	**NA**	–	**NA**	–

Source: Belgium's sixth national communication.
Abbreviation: NA = not available.

4. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

102. In its NC6, Belgium provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. In the first commitment period of the Kyoto Protocol, Belgium plans to use units from the Kyoto Protocol mechanisms in addition to domestic measures to reach its target. Belgium has not clarified its position regarding the use of market-based mechanisms in the second commitment period. During the review, Belgium informed the ERT that this will be decided based on the internal burden-sharing agreement between the regions.

103. According to the NC6, the total AAUs for Belgium for the first commitment period of the Kyoto Protocol amount to 673,995 kt CO_2 eq. Of these, 292,472 kt CO_2 eq have been allocated to the ETS sectors, amounting to an average annual allocation of 58,494 kt CO_2 eq. The remaining AAUs of 381,523 kt CO_2 eq have been allocated to the non-ETS sectors. The average non-ETS emission level in the first commitment period of the Kyoto Protocol is estimated to be 78,847 kt CO_2 eq/year, or 2,542 kt CO_2 eq above the annual target for these sectors. Belgium plans to use units from the Kyoto Protocol mechanisms amounting to 29,449 kt CO_2 eq (or an annual average amount of 5,889 kt CO_2 eq) for meeting the difference in actual emissions and the AAUs for the non-ETS sectors. In addition, the ETS sectors are expected to use units from the Kyoto Protocol mechanisms in the amount of 19,065 kt CO_2 eq. Thus, the total amount of Kyoto Protocol units to be used by Belgium for meeting its target in the first commitment period is 48,514 kt CO_2 eq, which constitutes only 7.7 per cent of the total AAUs. The ERT commends Belgium for providing transparent and complete information on supplementarity.

D. Provision of financial resources and technology transfer to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

1. Financial resources, including "new and additional" resources and resources under Article 11 of the Kyoto Protocol

104. In its NC6, Belgium provided details on measures taken to give effect to its commitments under Article 4, paragraphs 3, 4 and 5, of the Convention as required by the UNFCCC reporting guidelines on NCs and under Article 11 of the Kyoto Protocol, as required by the "Guidelines for the preparation of information required under Article 7 of the Kyoto Protocol".

105. Belgium has indicated what "new and additional" financial resources it has provided pursuant to Article 4, paragraph 3, of the Convention. The NC6, however, does not include information required by the UNFCCC reporting guidelines on NCs on how resources have been determined as being "new and additional". The ERT noted that Belgium's BR1 indicates that resources provided by Belgium during the fast-start finance period are "new and additional" as they constitute climate-specific finance that is complementary to the budgeted official development assistance (ODA). The ERT reiterates the recommendation from the review report of the NC5 that Belgium, in its next NC, provide a clear definition of what "new and additional" financial resources it has provided, clarifying how it has determined such resources as being "new and additional".

106. In its NC6, Belgium has not provided information on funding for the Adaptation Fund. The ERT noted that Belgium has provided information on funding for the Adaptation Fund in its BR1 (common tabular format table 7a), indicating that Belgium provided such funding in 2012. During the review, Belgium provided additional information indicating that funding for the Adaptation Fund was pledged by the Brussels-Capital Region in 2012, but it was actually contributed in 2013. Belgium noted that this information was not provided in the NC6 because, as opposed to the BR that allows for reporting on pledges, reporting in the NC is based on actual contributions. The ERT recommends that Belgium provide transparent information on its funding for the Adaptation Fund or provide a clear explanation as to why it has not provided any funding to the Adaptation Fund in its next NC.

107. Belgium has also reported on financial contributions related to the implementation of the Convention on both mitigation and adaptation activities through bilateral, regional and multilateral channels by sector. Belgium's climate-related ODA ranged between 23 and

26 per cent of the total ODA for selected sectors in the period 2010–2012. Table 7 summarizes information on financial resources and technology transfer.

108. Belgium has reported information on the assistance it has provided to developing country Parties that are particularly vulnerable to the adverse effects of climate change to help them to meet the costs of adaptation to those adverse effects. As part of fast-start finance, Belgium has made a financial contribution to climate-relevant multilateral funds, such as the Global Environment Facility (GEF), the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund, as well as through other climate-relevant funding channels, such as the United Nations Development Programme (UNDP) for supporting adaptation, mitigation and sustainable forest management in vulnerable developing countries.

Table 7
Summary of information on financial resources and technology transfer for 2009–2012
(Millions of euros)

Allocation channel of public financial support	*Years of disbursement*			
	2009	*2010*	*2011*	*2012*
Official development assistance	1 873.80	2 269.04	2 018.44	1 800.00[a]
Official development assistance (climate-related)[b]	79.03	111.74	114.14	66.49
Contributions through multilateral channels (climate-related)[b]	33.67	52.73	59.86	34.07
Contributions to the Global Environment Facility	23.53	37.00	37.00	31.00
Contributions through bilateral and regional channels (climate-related)[b,c]	45.32	59.02	54.28	32.42
Fast-start finance		42.00	24.38	26.18

Sources: (1) All figures, except those for fast-start finance, are from the sixth national communication of Belgium; (2) The figures for fast-start finance are from the UNFCCC finance portal, available at <http://www3.unfccc.int/pls/apex/f?p=116:2:1328444260536419>.

[a] The figures for 2012 are estimates because the final figures were not available at the time of analysis.

[b] The figures reported cover energy, forestry, agriculture, fisheries, water supply and sanitation, industry, environment, transport, humanitarian aid, and multisectoral aid.

[c] The bilateral contribution figures include both direct and indirect governmental cooperation.

2. Technology transfer, including information under Article 10 of the Kyoto Protocol

109. Belgium has provided in its NC6 information on activities related to the transfer of technology and capacity-building. A detailed review of the reported information is provided in chapter II.D.3 of the report of the technical review of the first biennial report.

110. In its NC6, Belgium did not provide a clear distinction between activities undertaken by the public sector and those undertaken by the private sector in the promotion, facilitation and financing of the transfer of, or access to, environmentally sound technologies. Belgium also did not report on its activities for financing access by developing countries to 'hard' or 'soft' environmentally sound technologies. During the review, Belgium provided additional information, indicating that the Federal Ministry of Environment is working on a study on

climate finance that will provide greater clarity on private climate finance flows. Belgium also clarified that it mainly contributes to technology transfer via multilateral channels and indirect sources (e.g. contributions to the SCCF) and as such it is difficult to determine the specific contribution of each of its projects to technology transfer. The NC6 highlights bilateral activities linked to technology transfer, such as mitigation and adaptation projects. The ERT reiterates the recommendation in the review report of the NC5 that Belgium enhance the completeness and transparency of its reporting by including relevant information on these elements in the next NC.

111. Belgium reported information on activities related to technology transfer in tabular format, which is a significant improvement in the reporting. The ERT noted, however, that only success stories are presented. The ERT encourages Belgium to include information on failure stories describing, where applicable, how challenges were overcome.

112. In its NC6, Belgium reported on the steps taken by the Government of Belgium and the regional governments to promote, facilitate and finance the transfer of technology, and to support the development and enhancement of endogenous capacities and technologies of developing countries. The Government of Belgium, through the Directorate General for Development Cooperation and Humanitarian Aid (DGD), supports the Flemish Inter-University Council for Development Cooperation in establishing partnerships between universities and university colleges in Flanders and developing countries. The DGD, through the French-speaking equivalent of the above-mentioned Inter-University Council, supports research projects by universities in Wallonia and their partners in developing countries. The Belgian Government funded the translation of a training course on climate change adaptation and development into French so that it can also be distributed in French-speaking developing countries.

E. Vulnerability assessment, climate change impacts and adaptation measures

113. In its NC6, Belgium has provided the required information on the expected impacts of climate change in the country and on adaptation options. Belgium has provided comprehensive information on adaptation measures in the industry, energy, transport and tourism sectors, and on cooperation on adaptation in developing countries. Belgium has addressed the encouragements contained in the review report of the NC5. The ERT commends Belgium for its efforts to improve its reporting.

114. From the text of the NC6, the ERT noted that it is not clear if the IPCC *Technical Guidelines for Assessing Climate Change Impacts and Adaptations*[6] and the United Nations Environment Programme (UNEP) *Handbook on Methods for Climate Change Impacts Assessment and Adaptation Strategies*[7] have been used by Belgium in the development of its adaptation plan. During the review, Belgium clarified that the federal adaptation plan was developed taking into account the EU guidelines on developing adaptation strategies, which are a component of the EU strategy on adaptation to climate change. The EU guidelines refer to, inter alia, the UNEP *Handbook* and the IPCC *Technical Guidelines* mentioned above. The ERT noted that inclusion of the information provided during the review would greatly enhance the transparency of the information on adaptation plans in the next NC.

[6] <http://www.ipcc-wg3.de/special-reports/ files-images/ipcc-technical-guidelines-1994n.pdf>.

[7] <http://www.ivm.vu.nl/en/Images/UNEPhandbookEBA2ED27-994E-4538-B0F0C424C6F619FE_tcm53-102683.pdf>.

115. During the review, Belgium provided additional information elaborating on its national policy on adaptation. The Flemish adaptation plan was adopted in 2013 and those of Wallonia and Brussels-Capital, as well as the federal and national adaptation plans, are in the finalization stages and will be adopted in 2015. The national adaptation plan will cover the period up to 2020 and will subsequently be revised and updated. The national adaptation plan has been developed not just as a compilation of regional plans but envisages filling the gaps in the adaptation measures of the regions. The ERT supports Belgium's intention to develop a comprehensive national adaptation plan.

116. During the review, Belgium provided additional information on recent adaptation measures implemented by Belgium for river flow management and coastal protection. Belgium also provided comprehensive information on multisectoral adaptation measures, including those in the National Adaptation Strategy, the National Biodiversity Strategy, the Flemish Climate Policy Plan, and the Walloon and Brussels-Capital Air-Climate-Energy plans. Sectors covered in these documents include health, tourism, agriculture, forestry, biodiversity, water and ecosystems. The ERT noted the usefulness of this information in further enhancing the transparency of the information on Belgium's adaptation plans.

117. Table 8 summarizes the information on vulnerability and adaptation to climate change presented in the NC6. The list of vulnerable areas is in accordance with the prioritization given by the Party.

Table 8
Summary of information on vulnerability and adaptation to climate change

Vulnerable area	*Examples comments adaptation measures reported*
Water resources	*Vulnerability*: in summer, the increased evaporation and potential reduction of precipitation increase the risk of drought and pollution of surface water. Higher temperatures and the possible lack of water in summer might cause problems for cooling electricity power stations. In winter, the increase in precipitation is expected to increase the risk of flooding *Adaptation*: measures include restrictions for new constructions in zones close to drinking water areas, efforts to improve the quality of groundwater (e.g. reduction of nitrate use), the development of insurance systems, dedicated studies, and public awareness/education programmes on water savings
Flooding	*Vulnerability*: increased rainfall in winter could contribute to greater groundwater recharge and an increase in river flows, causing risk of flooding *Adaptation*: major activities include the regional flood prevention framework, including the monitoring and management of river flows, the flood prediction system, improved soil infiltration, the installation of rainwater tanks, the construction of a network of storm drains in the Brussels-Capital Region and restrictions for new construction in zones prone to flooding
Coastal zones	*Vulnerability*: the vulnerability stems from the rise in sea level, stronger waves and storms, and the increase in the salinity of groundwater *Adaptation*: the Coastal Safety Management Plan was approved in 2011 and included hard, soft and natural sea defence through the maintenance of existing dykes and emphasis on natural forms of sea defence (solid dunes and broad high-lying beaches)
Biodiversity on land and marine ecosystems	*Vulnerability*: the rise in temperature could lead to the extinction of species as well as a change in the distribution of species and

Vulnerable area	*Examples comments adaptation measures reported*
	interactions between them. The appearance of new species could lead to the disappearance of indigenous ones and to the spread of new pests, diseases (affecting land areas) and harmful species of algae (affecting marine areas)
	Adaptation: measures include the development of the network of protected areas; the monitoring and protection of maritime species and habitats; the reduction of habitat fragmentation on land; the development of migration corridors; the prevention of invasive species; monitoring of the effects of climate change on biodiversity; and measures for species diversification and the reduction of non-climate restrictions on ecosystems
Agriculture and food security	*Vulnerability*: a positive impact is expected on yields but only for a limited time due to limited soil fertility, water and photoperiod. Damage may be caused by new pests and diseases as well by extreme events
	Adaptation: measures include crop management measures; sustainable nitrogen management in agriculture; and research and information campaigns, including an information centre for soil erosion
Forests	*Vulnerability*: there will be acceleration in forest growth for a limited time coupled with a risk of drought caused by higher temperatures and a lack of precipitation in summer. There will be limited natural adaptation of certain species (spruces, beech trees)
	Adaptation: measures include the diversification of species and the conservation of ecosystems; a study on the impact of climate change on forest ecosystems by a group of experts to inform recommendations for policymakers; and an exchange of information on diseases in real time
Fisheries	*Vulnerability*: changes in the abundance and distribution of commercial fish stocks and the risk of the appearance of invasive species
	Adaptation: measures include the development of standard procedures for the identification, monitoring and modelling of habitat and population dynamics; the study of features of potential predators; the evaluation of potential environmental and socioeconomic costs of impacts on species; and a project on forecasting jellyfish populations
Infrastructure and economy	*Vulnerability*: risk of heat waves, the phenomenon of urban heat islands, risk of flooding and lack of water
	Adaptation: measures include imposing carbon-neutral standards for buildings; combating the consequences of soil seal; increasing vegetation in urban areas; and implementing a number of projects aimed at adapting urban structures to possible climate change impacts
Transport	*Vulnerability*: impacts linked to higher temperatures include the softening of road surfaces, the formation of ruts on rails and roads, problems with electronic vehicle systems and greater demand for conditioning in transport. An increase in snowfall could cause and/or exacerbate disruptions
	Adaptation: measures include a 'bad weather' plan adopted by transport managers to ensure that the overground transport network functions well in the event of freezing temperatures, snow and other inclement weather; the North Sea Disaster Prevention and Management plan to combat exceptionally high tides; 'summer' and 'winter' plans drawn up by the rail infrastructure manager to anticipate and limit rail disruption as far as possible; and the

Vulnerable area	*Examples, comments, adaptation measures reported*
	Adaptation of Railway Infrastructure to Climate Change project involving the modelling of the rail adhesion index, the freezing of the third rail and the icing of overhead lines
Industry	*Vulnerability*: impact on production processes (e.g. water shortages, cooling of plants, etc.) as well as direct (flooding, high winds, etc.) and indirect damage (supply problems) *Adaptation*: measures include a new industrial policy focusing on making markets more flexible and consequently less vulnerable to change; research into a new approach/other procedures for Flemish industry; and allowances for the effects of future climate change in environmental impact surveys
Energy	*Vulnerability*: an increase in consumer demand for energy in summer and a decrease in the winter; a lack of water for cooling electricity power stations in summer; high sensitivity to extreme events and high temperatures (wind turbines, power lines, etc.); and risks of flooding of electricity power stations and substations *Adaptation*: measures include the promotion of sustainable energy generation methods not dependent on water; the promotion of building insulation; efforts aimed at securing the supply of energy; and the future research and analysis of the vulnerability of installations sensitive to the availability of water
Tourism	*Vulnerability*: the potential positive impacts of higher temperatures along with possible limited damage to tourist infrastructures. There will be a negative impact on water/river sports in the summer and on winter tourism due to rains *Adaptation*: measures include controlling flood zones and managing coastal defences, as well as a study on the impact of climate change on tourism
Human health	*Vulnerability*: rise in mortality, disease and ozone peaks due to heat waves; potential reduction in the prevalence of certain winter diseases (cardiovascular diseases); reduction in the capacity for work during hotter months; and the risk of an increase in the appearance of diseases such as botulism and vectoral diseases (e.g. Lyme disease, the chikungunya virus and dengue fever) *Adaptation*: measures include the national heat wave and ozone peaks plan and a programme to draw up an inventory of endemic and exotic mosquito species in Belgium

118. In the NC6, Belgium has reported on its vulnerability and impact assessment and adaptation measures, both implemented and planned, in a balanced way. Compared to the NC5, the NC6 provides a more transparent description of the industry, health, energy, tourism and transport sectors. Belgium has reported on a number of dedicated research studies on vulnerability with regard to water management and coastal protection, as well as on climate change impacts on agriculture, forest ecosystems, industry and transport. Among the major expected socioeconomic climate change impacts on Belgium are the lack of cooling water for electricity power stations (due to reduced cooling capacity and availability of water in the summer), damage to the coast by higher waves, and the higher risks of flooding.

119. With regard to cooperation with Parties not included in Annex I to the Convention, Belgium reported on the new Development Cooperation Act published in 2013 that includes the protection of natural resources and the environment, as well as the fight against climate change. During the review, Belgium presented information on the development of a

new web-based research platform (KLIMOS)[8] to facilitate the sharing and exchange of data between scientists in Belgium and developing countries. The NC6 also provides updated information on Belgium's ongoing bilateral cooperation on adaptation with Burundi and Uganda. Multilateral cooperation includes supporting partner organizations and public funds (e.g. UNEP and the GEF).

F. Research and systematic observation

120. Belgium has provided detailed information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the World Climate Programme, the International Geosphere–Biosphere Programme (IGBP), the Global Climate Observing System (GCOS) and the IPCC. The NC6 also provides information on actions taken to support related capacity-building in developing countries. Belgium has provided a summary of information on GCOS activities.

121. The ERT noted that in its NC6, Belgium has not identified the opportunities for and barriers to free and open international exchange of data and information and actions taken to overcome barriers. During the review, Belgium provided additional information on existing opportunities for and barriers to free and open international exchange of data and information. Belgium noted that a number of web-based platforms, such as the European Climate Adaptation Platform and the KLIMOS research platform, present an opportunity to facilitate free and open exchange of data and information. However, there are many barriers, such as financing, proprietary rights to data and a lack of willingness to share data. The ERT encourages Belgium to provide this information in the next NC.

122. The NC6 supplements and updates the information contained in the NC5. In particular, the information on new scientific initiatives and the coordination of research across the federal, regional and community levels was updated and expanded. However, the ERT noted that information on actions taken to support related capacity-building in developing countries has not been consolidated in a separate section in the NC6 as it was in the NC5. The ERT recommends that Belgium consolidate the mandatory information on support related to capacity-building in developing countries in a separate section to enhance the transparency of its reporting in the next NC.

123. During the review, Belgium provided additional information elaborating on a number of past and current research projects related to paleoclimate, both fundamental and multidisciplinary, funded by the Belgian Science Policy Office and conducted in universities and federal scientific institutions. The ERT was provided with additional explanatory information on studies on existing response options to climate change impacts. Belgium also provided a list of projects linked to research on adaptation, mitigation or transition at the federal level and in the Flemish and Walloon Regions. The ERT noted the usefulness of the information and suggests that Belgium include it in the next submission.

124. During the review, Belgium provided information on recent developments in research since the submission of the NC6 on the ongoing work to establish the Federal Reference Centre of Climate Expertise, the status of existing initiatives and the planned participation in new climate-relevant projects. During the review, Belgium informed the ERT that the government agreement of October 2014 has abolished the Belgian Federal Public Planning Service Science Policy (PPS Science Policy) for financial reasons. The remainder of the Science Policy Office will be integrated into another federal public service. According to a decision of the Council of Ministers of December 2014, pending the integration, the PPS Science Policy has to ensure continuity of service.

[8] <http://www.biw.kuleuven.be/lbh/lbnl/forecoman/klimos/KLIMOSfrontpage.html>.

125. The NC6 contains more transparent and complete information on general policy and the coordination of research in Belgium across the federal, regional and community levels. The federal government and each region has its responsible departments or agencies to develop and evaluate research policy. The International Cooperation Commission (ICC) and the Federal Cooperation Commission (FCC), under the Inter-ministerial Conference for Science Policy (IMCSP), are responsible for cooperation, coordination and consultation related to policy research. Climate-related research and observation activities are mainly carried out at the federal level in universities and research institutes. Communities are mostly responsible for funded research. Funding for research is provided at all levels: federal, regional and community.

126. Belgium is actively involved in international cooperation at the European level via participation in the European Research Area Network (ERA-NET, an intergovernmental framework for European cooperation in the field of research), the European Strategy Forum on Research Infrastructures, and the Joint Programming Initiative. Belgium is also a partner in the European research infrastructure project Integrated Carbon Observation System. International programmes include IGBP, the World Climate Research Programme and the European Network for Earth System Modelling. The regions also actively participate in a number of international research programmes. The domestic level focuses on the development of reference expertise in the field of climate, which is envisaged under the new Federal Reference Centre for Climate Expertise. Belgium also conducts climate modelling and investigations of its impacts at the national level. A research programme entitled Belgian Research Action through Interdisciplinary Networks was launched in 2012, which supports a number of climate-related studies.

127. Belgium has provided information on its contribution to the GCOS, including ground-based measurements and satellite observations. A new ground-based observation station became operational in 2012. Atmospheric measurements are carried out for ozone, aerosols and GHGs. Two meteorological stations observe the North Sea and perform carbon-related measurements, among other things. Terrestrial ecosystems are assessed via the satellite monitoring of vegetation, evapotranspiration and land cover. Ground-based meteorological and climatological measurements are also conducted in other European countries, as well as in Africa and Antarctica.

G. Education, training and public awareness

128. In the NC6, Belgium has provided information on its actions relating to education, training and public awareness at both the domestic and international levels. Compared to the NC5, the NC6 provides more extensive information on international cooperation and education in developing countries and updated information on successful examples of stakeholder information management systems in response to the encouragements made in the review report of the NC5. The information reported in the NC6 on education, training and public awareness is transparent and complete. The ERT commends Belgium for its improved reporting.

129. During the review, Belgium provided additional information, elaborating on new initiatives, such as the training of teachers and the development of education tools for low-carbon scenarios for 2050 for secondary schools (to be implemented in 2015). The ERT noted the usefulness of the information and suggests that Belgium include updated and exhaustive information in the next NC, to the extent possible.

130. Belgium has undertaken an impressive number and range of initiatives on education, training and public awareness, both related to climate change as well as to larger issues such as the environment and sustainable development. Different institutions and

organizations are involved in the actions at the federal, regional, community and local levels. Various sources of financing are used, and most often public authorities fund actions undertaken by the civil society organizations which also fund themselves. There are centralized actions undertaken by the Climate Change Section of the Federal Public Service Health, Food Chain Safety and Environment in the Directorate General for the Environment, such as federal communications to the general public via brochures, guides and Internet and media campaigns. The priorities for regional and local authorities are activities relating to the reduction of GHG emissions and the promotion of regional climate plans to the public. Communities are actively involved in the education programmes. Education in primary and secondary schools is also among the priorities identified by Belgium.

131. In its NC6, Belgium has provided information on international cooperation and education in developing countries. The Wallonie-Bruxelles International organization provides support to the Institut de la Francophonie pour le Développement Durable to assist developing countries in the formulation of national sustainable development strategies and participation in the multilateral processes in the environment and sustainable development. The programmes aim to increase institutional capacity-building, improve the dissemination of information, enhance environmental knowledge, develop energy policies and assist in the international negotiation process in developing countries.

132. In the NC6 and during the review, Belgium provided information on the role of the public and non-governmental organizations (NGOs) in framing climate change policy in Belgium. The federal government provides financial support to local awareness-raising initiatives related to climate change. The federal government also collaborates with the World Wide Fund for Nature (WWF) on initiatives aimed to launch an educational dossier for primary schools and an educational website for secondary schools. The Brussels-Capital Region grants subsidies to environmental NGOs or non-profit organizations that are active in raising public awareness on climate change, the environment, energy savings and mobility. The Flemish Government approved a decision in 2003 for granting subsidies to nature and environmental projects by the public and NGOs. Many actions for raising awareness of climate change, such as Earth Hour by WWF, are organized by international and local NGOs. The ERT noted that more transparent information on the role of the public and NGOs in education, training and public awareness would greatly enhance the comprehensiveness of the reporting in the next NC.

III. Summary of reviewed supplementary information under the Kyoto Protocol

A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

133. Supplementary information provided by Belgium under Article 7, paragraph 2, of the Kyoto Protocol in its NC6 is mostly complete and transparent. The supplementary information is located in different sections of the NC6. Table 9 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol as well as references to the NC6 chapters in which this information is provided.

134. Belgium has not reported the following elements of the supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol: financial resources in accordance with Article 11 of the Kyoto Protocol, in particular information on how it has considered the financial resources provided as "new and additional". The technical assessment of the information reported under Article 7, paragraph 2, of the Kyoto Protocol

is contained in the relevant sections of this report. The ERT recommends that Belgium include this missing information in its next national communication.

Table 9
Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

Supplementary information	*Reference to the sixth national communication*
National registry	Section 3.3
National system	Section 3.4
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Section 5.3
Policies and measures in accordance with Article 2	Sections 4.3 and 4.4
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Section 4.2
Information under Article 10	Sections 3.3, 4.3, 6.4, 7.4, 7.5, 8 and 9
Financial resources	Section 7

B. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

135. Belgium reported the information requested in section H, "Minimization of adverse impacts in accordance with Article 3, paragraph 14", of the annex to decision 15/CMP.1 as a part of its 2014 annual submission. The information in its 2014 NIR is in line with the supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol (decision 15/CMP.1). During the review, Belgium provided the ERT with additional information on how it strives to implement its commitments under Article 3, paragraph 1, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The ERT considers the reported information to be mostly complete and transparent. The completeness and transparency of the information has been significantly enhanced compared to the previous submission. The ERT commends Belgium for the additional information provided.

136. In its 2014 NIR, Belgium did not provide information on how it assists developing country Parties, in particular those that are highly dependent on the export and consumption of fossil fuels, in diversifying their economies. During the review, Belgium explained that some clean development mechanism (CDM) projects, particularly in the area of renewable energy (including biomass) production in developing countries, are assisting in the diversification of such economies. The ERT recommends that Belgium include information on this, including the information provided during the review, in its next NC.

137. The 2014 NIR and the additional information provided during the review presented several initiatives of Belgium aimed at minimizing adverse impacts, including actions aiming to address market imperfections through the EU liberalization of the electricity and natural gas markets and involvement in the EU ETS; the reduction of subsidies supporting the use of coal and other fossil fuels for energy production; and the promotion of biofuels in line with EU common policies. During the review, Belgium further elaborated on support to the most vulnerable countries, including CDM projects, nationally appropriate mitigation action development and fast-start finance. The ERT noted the significant number of actions

being implemented, even though Belgium does not consider that its measures cause any direct adverse social, environmental or economic impacts on developing country Parties. The ERT further noted that the reporting of more information on or the provision of cross references to the respective sections of the NC on support to the most vulnerable countries would greatly enhance the transparency of the reporting.

IV. Conclusions and recommendations

138. The ERT conducted a technical review of the information reported in the NC6 of Belgium according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good overview of the national climate policy of Belgium. The information provided in the NC6 includes most elements of the supplementary information under Article 7 of the Kyoto Protocol with the exception of information on financial resources, in particular on how Belgium considers the financial resources provided as "new and additional". During the review, Belgium provided additional information, for example on the national system and national registry; domestic arrangements; the National Adaptation Strategy; the Flemish Climate Policy Plan; trends and drivers of emissions in major sectors; procedures and indicators for monitoring progress with PaMs; arrangements for ensuring that afforestation/deforestation measures contribute to the conservation of biodiversity and the sustainable use of natural resources; and the methodologies and assumptions used for the projections.

139. Belgium's emissions for 2012 were estimated to be 18.5 per cent below its 1990 level excluding LULUCF and 19.0 per cent below including LULUCF. The decrease in emissions was driven by the fuel switch from coal to natural gas in energy production, improvements in energy efficiency, the increased use of biomass and cogeneration, reduced activity in the iron and steel sector, biogas recovery in solid waste disposal sites, a drop in the livestock population and changes in agricultural practices. These factors outweighed the increase in emissions due to the GDP increase, population growth and increase in road traffic and dwellings.

140. In the NC6, Belgium presents GHG projections for the period 2010–2020. Two scenarios are included: 'with measures' and 'with additional measures'. The projected reductions in GHG emissions under the 'with measures' scenario and 'with additional measures' scenarios, in relation to the 1990 level, are 15.6 and 16.9 per cent, respectively.

141. For the first commitment period of the Kyoto Protocol (2008–2012), within the EU burden-sharing agreement Belgium committed to reducing its emissions by 7.5 per cent below the base year (1990) level. Based on the 2014 inventory submission, Belgium's total cumulative emissions for the period 2008–2012 amounted to 626,308.78 kt CO_2 eq, while its assigned amount agreed in the initial review report under the Kyoto Protocol is equal to 673,995.53 kt CO_2 eq, which is 7.6 per cent below its cumulative total emissions for the same period. Belgium is thus in a position to meet its Kyoto Protocol target for the first commitment period.

142. The NC6 contains information on how Belgium's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. Including both the EU ETS and non-ETS sectors, Belgium plans to use units from the Kyoto Protocol in the amount of 48,514 kt CO_2 eq, which constitutes only 7.7 per cent of the total AAUs for the first commitment period of the Kyoto Protocol.

143. Under the ESD, the Belgian emission reduction target by 2020 in sectors not covered by the EU ETS is a 15.0 per cent reduction below the 2005 level, which is equal to 66,700 kt CO_2 eq in 2020. The NC6 indicates that even under the 'with additional measures' scenario, the emissions from the non-ETS sectors are projected to be 75,700 kt

CO_2 eq in 2020, which is 13.5 per cent above the target for the non-ETS sectors for 2020. The projections indicate that Belgium is not on track to meet its Kyoto Protocol target for the second commitment period without the use of Kyoto Protocol mechanisms and that it should intensify its efforts and implement more PaMs on time to reach its target by 2020.

144. As Belgium is a federal State, climate PaMs are developed and implemented on two government levels: federal and regional. Regional climate plans such as the Flemish Mitigation Plan (2013–2020), COBRACE and the Walloon Air-Climate-Energy Plan (currently undergoing public review) are supplemented by federal-level policies in areas of federal power. The NCP is a compilation of PaMs from regional and federal climate plans to enable Belgium to meet its obligations under the Kyoto Protocol. These measures largely follow EU policy requirements on emissions trading and Kyoto Protocol mechanisms, as well as the energy, transport, agriculture and waste management sectors. The NCP was approved in 2009 for the period 2009–2012 and provides the national burden-sharing agreement towards Belgium's Kyoto Protocol target for the first commitment period (2008–2012). The NCP provides the legal basis for the decisions to be taken to implement the commitments entered into by Belgium under the 2020 EU climate and energy package for the second commitment period of the Kyoto Protocol.

145. The main PaMs envisaged to deliver emission reductions towards Belgium's national target are: the EU ETS; green and/or CHP certificates; financial support for reduced energy use and the use of RES in the residential sector; and the improvement and promotion of public transport. The most important cross-cutting PaM in terms of coverage of total GHGs is the EU ETS, which has been operational since 2005. It mainly covers point sources in the energy, industrial and aviation sectors. For the period 2013–2020, an EU-wide cap is in place, reducing emissions by 21.0 per cent by 2020 compared to the 2005 level, including by 1.74 per cent annually over that period.

146. In its NC6, Belgium provided information on the provision of support required under the Convention and its Kyoto Protocol. Belgium has provided information on provision of financial resources related to the implementation of the Convention through bilateral, regional and other multilateral channels as well as through other climate-relevant funding channels, such as the funding of climate-relevant projects through UNDP for both mitigation and adaptation activities. The NC6 provides detailed information on the assistance provided to developing countries that are particularly vulnerable to climate change. Belgium has provided in its NC6 information on activities related to the transfer of technology and capacity-building, including success stories and steps taken by the Government of Belgium and the regional governments to promote, facilitate and finance transfer of technology, and to support the development and enhancement of endogenous capacities and technologies of developing countries.

147. In its NC6, Belgium has provided the required information on the expected impacts of climate change in the country and on adaptation options. Among the major expected socioeconomic impacts for Belgium are a lack of cooling water for electricity power stations (due to reduced cooling capacity and availability of water in summer), damage to the coast by higher waves and higher risk of flooding. Most regional adaptation plans and the national adaptation plan are being finalized and will be adopted at the beginning of 2015, while the Flanders adaptation plan was adopted in 2013. The national adaptation plan maintains consistency with the regional plans while aiming to fill gaps in measures planned by the regions.

148. Belgium has provided information on its actions relating to research and systematic observation, and has addressed both domestic and international activities. The federal government and each region have their responsible departments or agencies to develop and evaluate research policies. The ICC and FCC, under the IMCSP, are responsible for cooperation and the coordination of policy research. Climate-related research and

observation activities are mainly carried out at the federal level, in universities and research institutes. Communities are mostly responsible for funded research. Funding for research is provided at all levels: federal, regional and community.

149. Belgium has provided information on its actions relating to education, training and public awareness at both the domestic and international levels. Education and training is conducted at the federal, regional and community levels, including education programmes for primary schools, secondary schools, higher education and training for professionals. Different institutions and organizations are involved in the actions at the federal, regional, community and local levels. Various sources of financing are used, and most often the public authorities fund actions undertaken by the civil society organizations which also fund themselves. Belgium also provides information on international cooperation on education in developing countries.

150. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol is provided by Belgium in its 2014 annual submission.

151. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of Belgium's reporting under the Convention and its Kyoto Protocol. The key recommendations[9] are that Belgium:

(a) Improve the completeness of its reporting by including in the next NC the following:

(i) Information on recent changes in the domestic and regional legislative arrangements and enforcement and administrative procedures the Party has in place to meet its commitments under the Kyoto Protocol;

(ii) Information on how PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals;

(iii) Information on factors and activities for each sector to provide the reader with an understanding of emission trends in the years 1990 to 2020;

(iv) An estimate of the total effect of its PaMs from all sectors in accordance with the 'with measures' definition;

(v) Information on funding for the Adaptation Fund established in accordance with decision 10/CP.7;

(vi) Information on activities for financing access by developing countries to 'hard' or 'soft' environmentally sound technologies;

(vii) Information on how it assists developing country Parties, in particular those that are highly dependent on the export and consumption of fossil fuels, in diversifying their economies;

(b) Improve the transparency of its reporting by including in the next NC the following:

(i) More detailed information on the national system regarding the data collection process;

(ii) More detailed and consolidated information on legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of

[9] The recommendations are given in full in the relevant sections of this report.

the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources;

(iii) Consistent information on PaMs reported in different sections of the NC including between tables and textual descriptions on the total effects of PaMs;

(iv) Transparent information on emission projections related to international bunkers, as well as on the relevant estimation methodologies;

(v) Consolidated information in a separate section of the NC on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade and social, environmental and economic impacts, on other Parties, especially developing country Parties;

(vi) Information on projections using, to the extent possible, the same categories in the projections section as those used in the PaMs section;

(vii) A clear definition of "new and additional" financial resources and a clarification of how it has determined such resources as being "new and additional";

(viii) A clear distinction between activities undertaken by the public sector and those undertaken by the private sector in the promotion, facilitation and financing of the transfer of, or access to, environmentally sound technologies.

V. Questions of implementation

152. During the review, the ERT assessed the NC6, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol and reviewed information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention. Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention. Part I: UNFCCC reporting guidelines on annual inventories". FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

"Guidelines for review under Article 8 of the Kyoto Protocol". Decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 23/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a02.pdf>.

FCCC/SBI/2011/INF.2. Compilation and synthesis of supplementary information incorporated in fifth national communications submitted in accordance with Article 7, paragraph 2, of the Kyoto Protocol. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf02.pdf>.

FCCC/ARR/2013/BEL. Report of the individual review of the annual submission of Belgium submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/bel.pdf>.

FCCC/IRR/2007/BEL. Report of the review of the initial report of Belgium. Available at <http://unfccc.int/resource/docs/2007/irr/bel.pdf>.

FCCC/IDR.5/BEL. Report of the in-depth review of the fifth national communication of Belgium. Available at <http://unfccc.int/resource/docs/2011/idr/bel05.pdf>.

Sixth national communication of Belgium. Available at <http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/7742.php>.

2013 GHG inventory submission of Belgium. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php>.

2014 GHG inventory submission of Belgium. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8108.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Laurence de Clock (Climate Change Section of the Federal Public Service Health, Food Chain Safety and Environment in the Directorate General for the Environment), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in Belgium. The following documents[1] were also provided by Belgium:

National Climate Commission. 2010. *Belgian National Climate Change Adaptation Strategy*. Available at <www.climatechange.be>.

Flemish Ministry for Environment, Nature and Culture. *Flemish Climate Policy Plan 2013–2020: A summary*. Available at < http://www.flanders.be/en/publications/detail/the-flemish-climate-policy-plan-2013-2020-1>.

[1] Reproduced as received from the Party.